

New ophthalmology course

AFCM

Red Eye
Chronic Red Eye

ILOs

By the end of this section the student can:

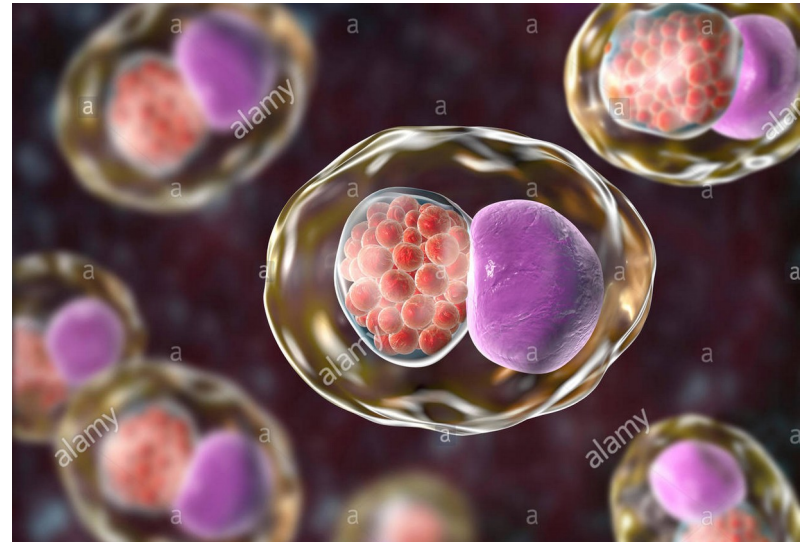
1. Enumerate the causes of chronic red eye
2. Describe the clinical features of each entity
3. Differentiate the underlying cause
4. Select the appropriate investigation
5. Primary manage chronic red eye
6. Solve clinical problems related to chronic red eye

Chronic Red Eye

- Chronic conjunctivitis
 - Trachoma
 - VKC
 - Ocular rosacea
 - Conjunctivitis medicamentosa
 - Ocular cicatricial pemphigoid
- Keratoconjunctivitis sicca (dry eye syndrome)
- Chronic uveitis
- Chronic glaucoma

Trachoma

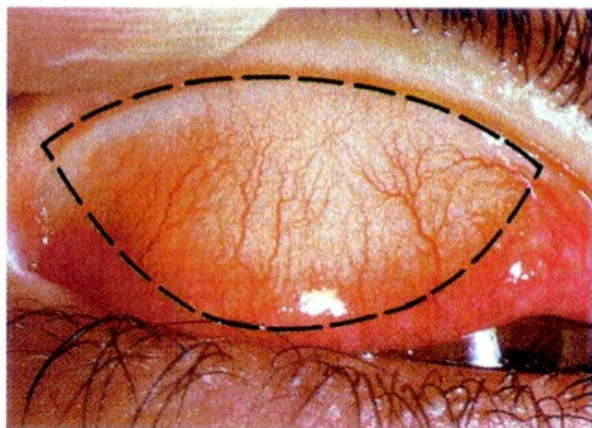
- Is a chronic conjunctivitis caused by ***Chlamydia trachomatis*** serotypes *A, B and C*, endemic in many parts of the world including **Egypt**
- The organism is acquired during **childhood** by flies or dirty hands, many cases can be prevented by healthy habits as hand and face washing
- Conjunctiva shows **both follicles** (lymphocytic aggregates) and **papillae** (epithelial proliferation)
- Cornea may be involved with **follicles** (Herbert's rosettes) and



WHO classification

- The WHO grading system for trachoma classifies the disease in 5 grades:
 - Trachomatous Inflammation: **Follicular** (TF) - which mostly requires topical treatment. [Tetracycline](#)
 - Trachomatous Inflammation: **Intense** (TI) - during which topical and systemic treatments are considered.
 - Trachomatous **Scarring** (TS): when scars are visible in the tarsal conjunctiva and may obscure tarsal blood vessels.
 - Trachomatous **Trichiasis** (TT): when an individual is referred for eyelid surgery.
 - Corneal **Opacity**: a stage during which a person is irreversibly blind.

a



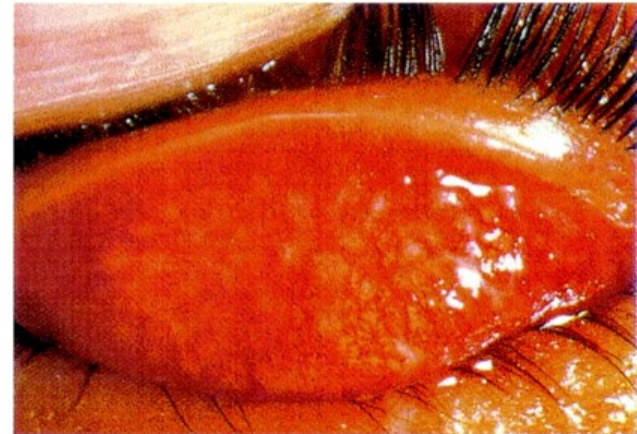
b

**Follicl
es**

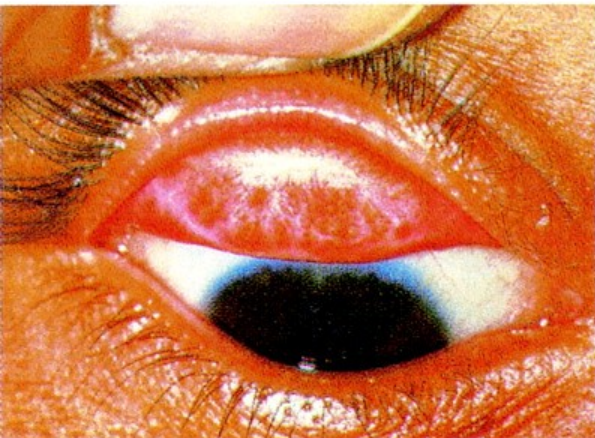


c

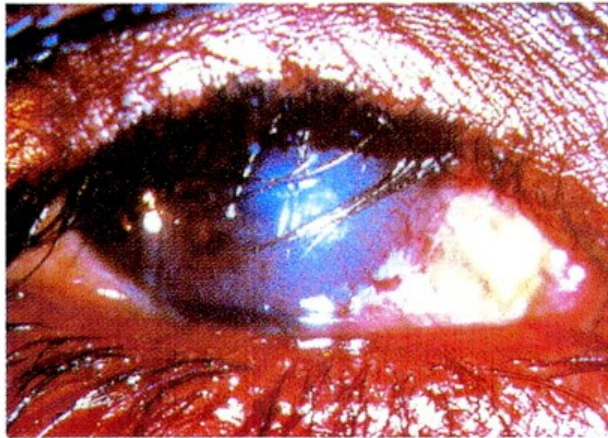
**Follicles and
papillae**



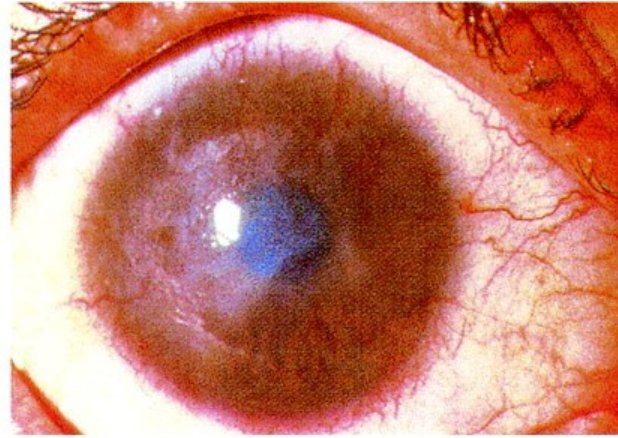
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e



f



**Arlt's line
(fibrosis)**

**Corneal
scarring
Trichiasis**

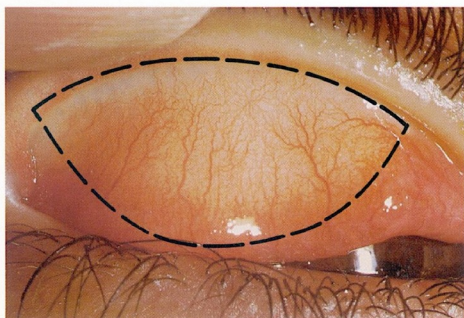
**Pannus
siccus**

TRACHOMA GRADING CARD

- Each eye must be examined and assessed separately.
- Use binocular loupes (x 2.5) and adequate lighting (either daylight or a torch).
- Signs must be clearly seen in order to be considered present.

The eyelids and cornea are observed first for intumed eyelashes and any corneal opacity. The upper eyelid is then turned over (everted) to examine the conjunctiva over the stiffer part of the upper lid (tarsal conjunctiva).

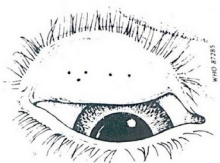
The normal conjunctiva is pink, smooth, thin and transparent. Over the whole area of the tarsal conjunctiva there are normally large deep-lying blood vessels that run vertically.



Normal tarsal conjunctiva (x 2 magnification). The dotted line shows the area to be examined.

TRACHOMATOUS INFLAMMATION – FOLLICULAR (TF): the presence of five or more follicles in the upper tarsal conjunctiva.

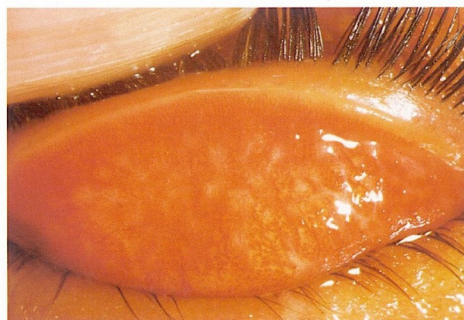
Follicles are round swellings that are paler than the surrounding conjunctiva, appearing white, grey or yellow. Follicles must be at least 0.5mm in diameter, i.e., at least as large as the dots shown below, to be considered.



Trachomatous inflammation – follicular (TF).

TRACHOMATOUS INFLAMMATION – INTENSE (TI): pronounced inflammatory thickening of the tarsal conjunctiva that obscures more than half of the normal deep tarsal vessels.

The tarsal conjunctiva appears red, rough and thickened. There are usually numerous follicles, which may be partially or totally covered by the thickened conjunctiva.



Trachomatous inflammation – follicular and intense (TF + TI).

TRACHOMATOUS SCARRING (TS): the presence of scarring in the tarsal conjunctiva.

Scars are easily visible as white lines, bands, or sheets in the tarsal conjunctiva. They are glistening and fibrous in appearance. Scarring, especially diffuse fibrosis, may obscure the tarsal blood vessels.



Trachomatous scarring (TS)

TRACHOMATOUS TRICHIASIS (TT): at least one eyelash rubs on the eyeball.

Evidence of recent removal of intumed eyelashes should also be graded as trichiasis.



Trachomatous trichiasis (TT)

CORNEAL OPACITY (CO): easily visible corneal opacity over the pupil.

The pupil margin is blurred viewed through the opacity. Such corneal opacities cause significant visual impairment (less than 6/18 or 0.3 vision), and therefore visual acuity should be measured if possible.



Corneal opacity (CO)

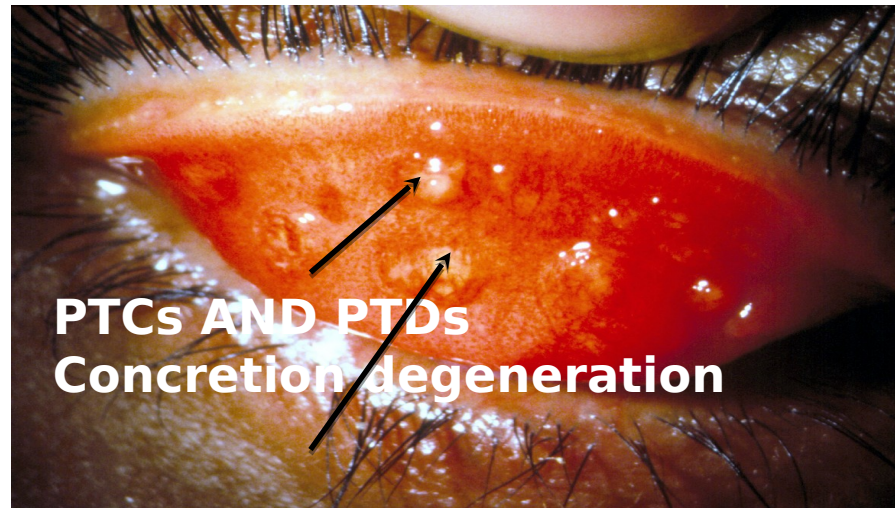
- TF:**– give topical treatment (e.g. tetracycline 1%).
TI:– give topical and consider systemic treatment.
TT:– refer for eyelid surgery.



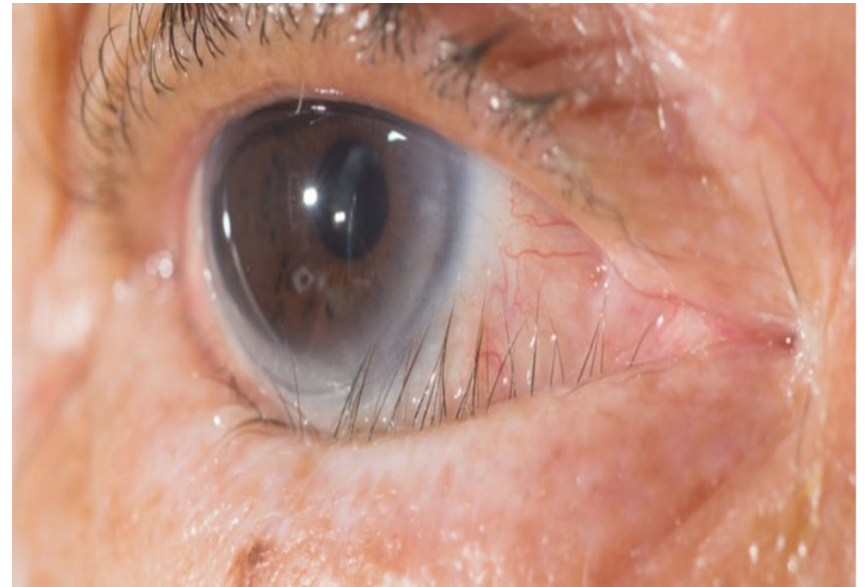
**WORLD HEALTH ORGANIZATION
PREVENTION OF BLINDNESS AND DEAFNESS**



Support from the partners of the WHO Alliance for the Global Elimination of Trachoma is acknowledged.



- Infection remains for many years resulting in **progressive** fibrosis manifested as
 - Conjunctival fibrosis
 - Shallow fornix
 - Symblepharon bilateral
 - Trichiasis
 - Entropion
 - Corneal ulcers and scarring
- Treatment is by
 - Oral tetracycline for 2-3 weeks to eradicate infection
 - Oral erythromycin in children
 - **Azithromycin single dose** of 1gm in adults and 20mg/kg in children
 - Treatment of complications esp. trichiasis and entropion

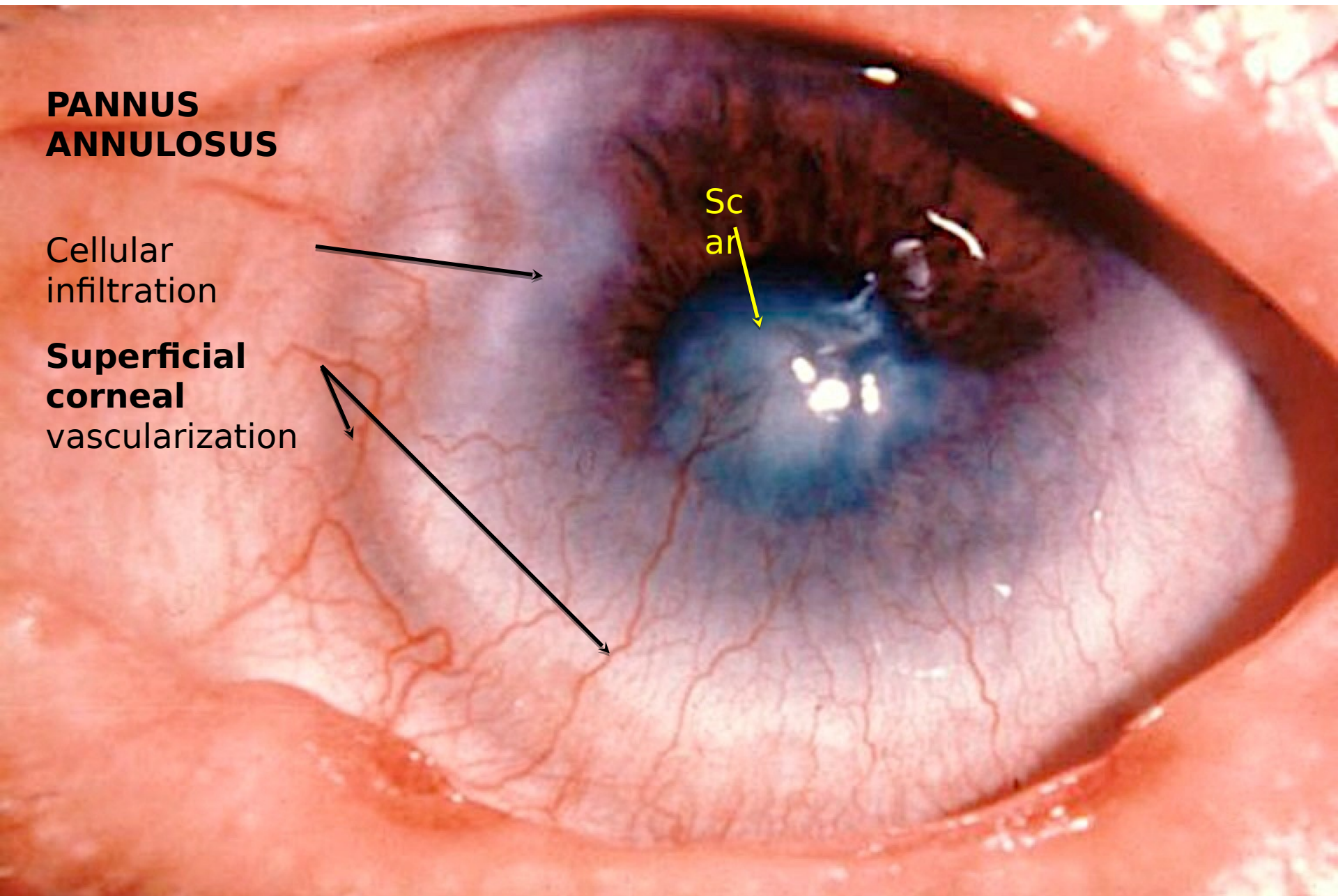


PANNUS ANNULOSUS

Cellular
infiltration

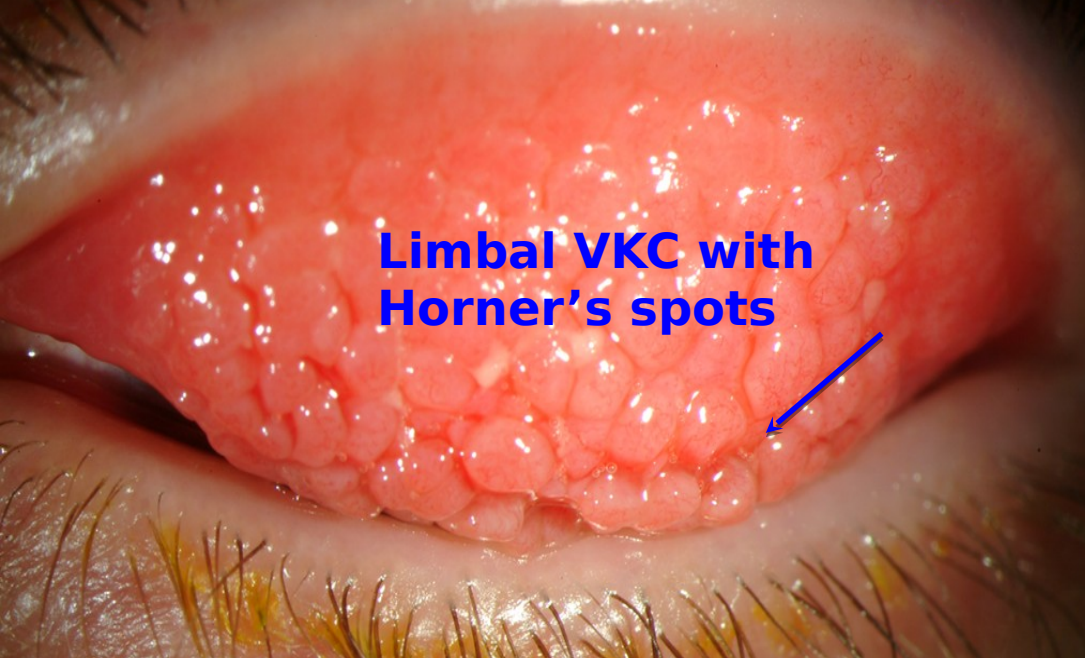
**Superficial
corneal
vascularization**

Sc
ar



Vernal keratoconjunctivitis

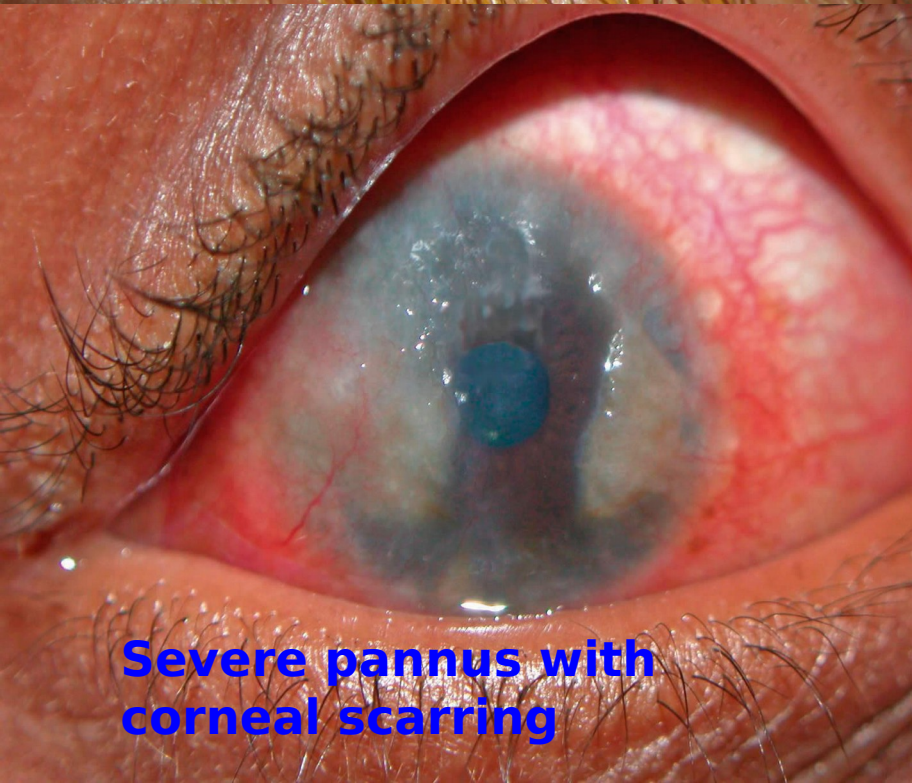
- Is a **recurrent** chronic conjunctivitis that aggravates in **spring** (spring catarrh) and summer allergy
- It is very **common** in the middle-east and **Egypt**
- In hot months the eyes are red and **itchy** with a **ropy** discharge
- If lids are **everted** they show papillae that could be quite large and arranged as **cobble-stone** (palpebral VKH)
- The limbus may show **gelatinous masses** with **white Taranta spots** (limbal VKH)
- **Corneal vascularization** and ulcers may occur (shield ulcer)



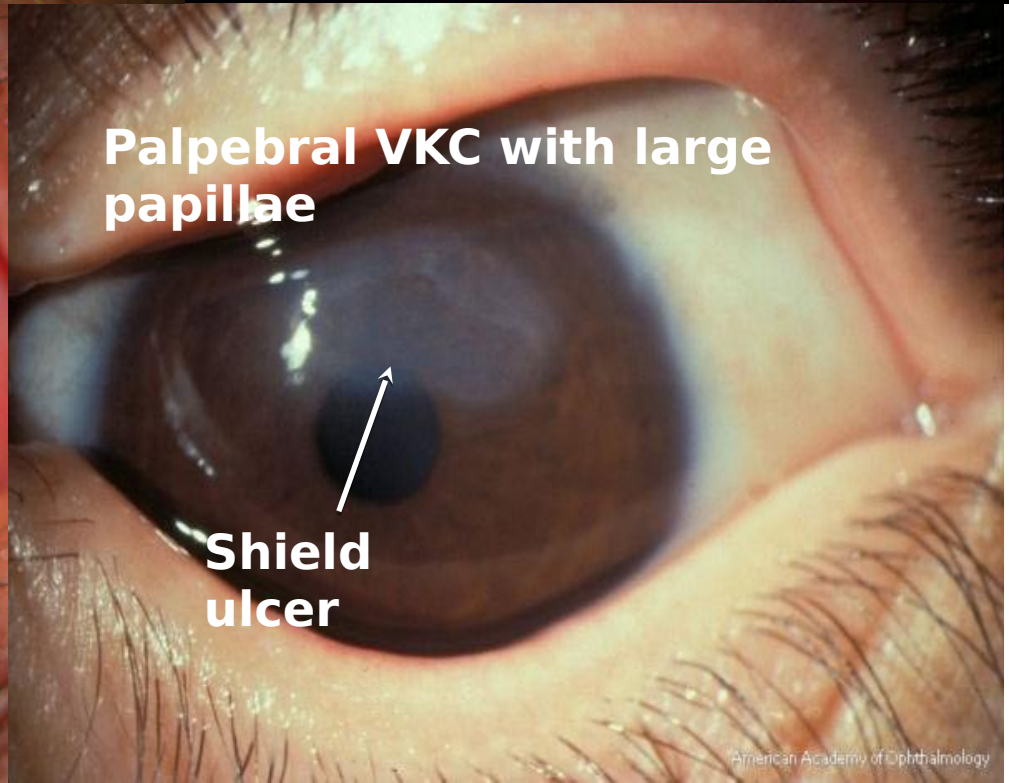
**Limbal VKC with
Horner's spots**



**Palpebral VKC with large
papillae**



**Severe pannus with
corneal scarring**



**Shield
ulcer**

- Treatment is preventive
 - Topical cromolyn sodium 4%
 - Prevents MAST cell degranulation
 - Should start 4 weeks before symptoms appear
- Then symptomatic in mild cases
 - Cold compresses
 - Dark glasses
 - Antihistamines/VCS
- Then **topical Steroids** in severe cases
- Steroids are dangerous with chronic use (more than 3x/day for 1 month)
- Topical immunomodulators as cyclosporine and tacrolimus may help spare steroids

Ocular rosacea

- Ocular involvement is common in **facial rosacea**
 - Lid involvement
 - Anterior and posterior blepharitis
 - Meibomianitis
 - Margin telangiectasia
 - Ptylosis
 - Loss of lashes and trichiasis
 - Corneal involvement
 - Vascularization and infiltration (pannus)
 - Ulcers
 - Scarring

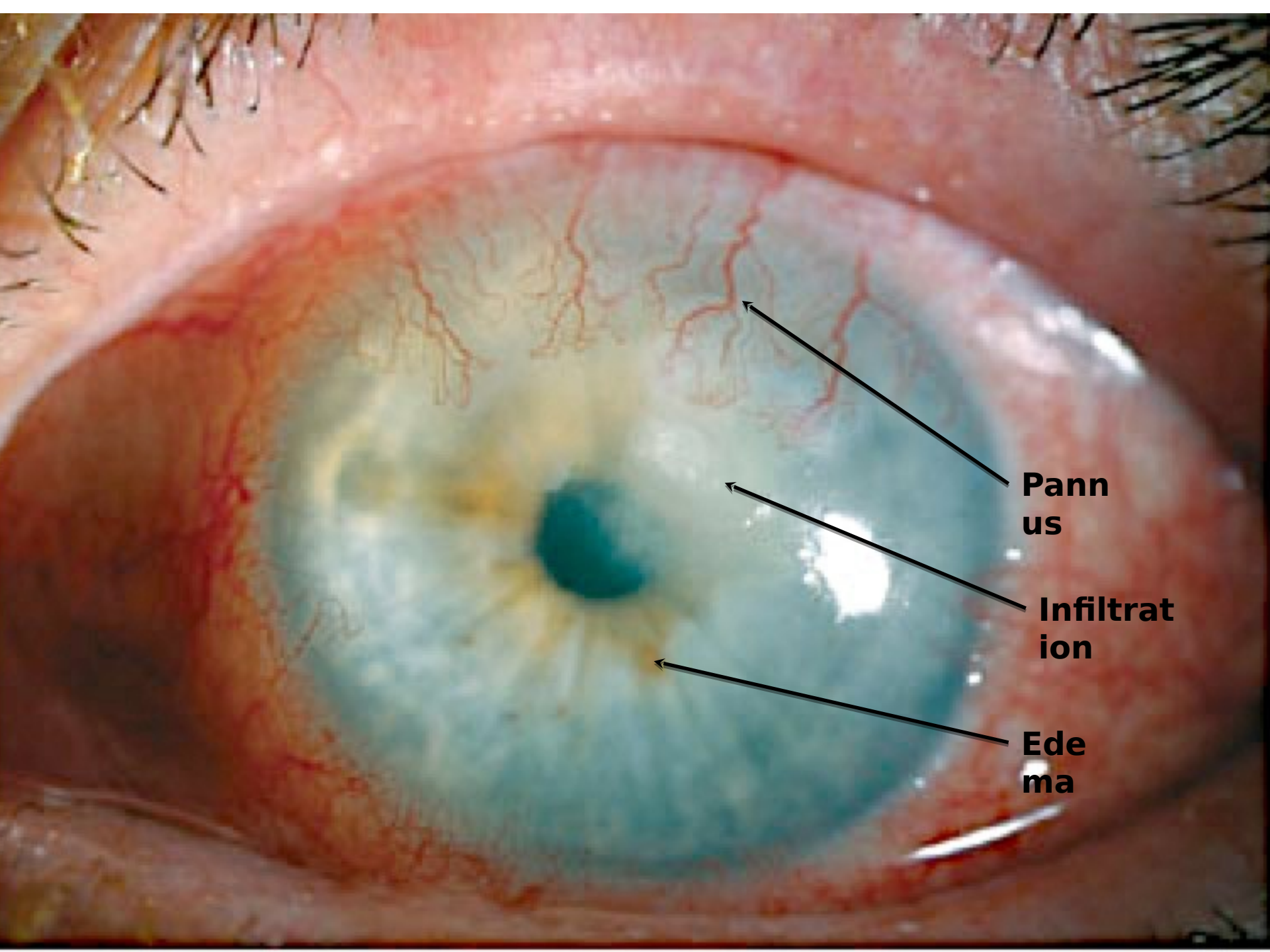


**Meibomia
nitis**

This is a close-up photograph of a patient's eyelid. The upper eyelid is the primary focus, showing a large area of redness and swelling. Several small, yellowish-white spots are visible on the eyelid surface. Black arrows point from the text labels to these specific areas. The lower eyelid and the surrounding skin are also visible, showing some redness and a moist appearance.

**Telangiecta
sia**

**Ptylos
is**



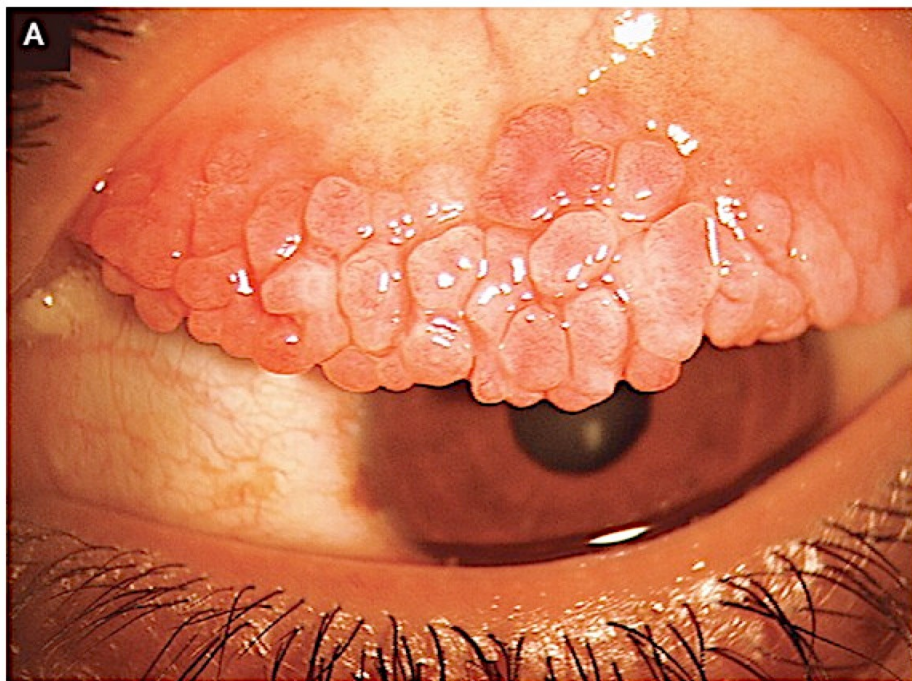
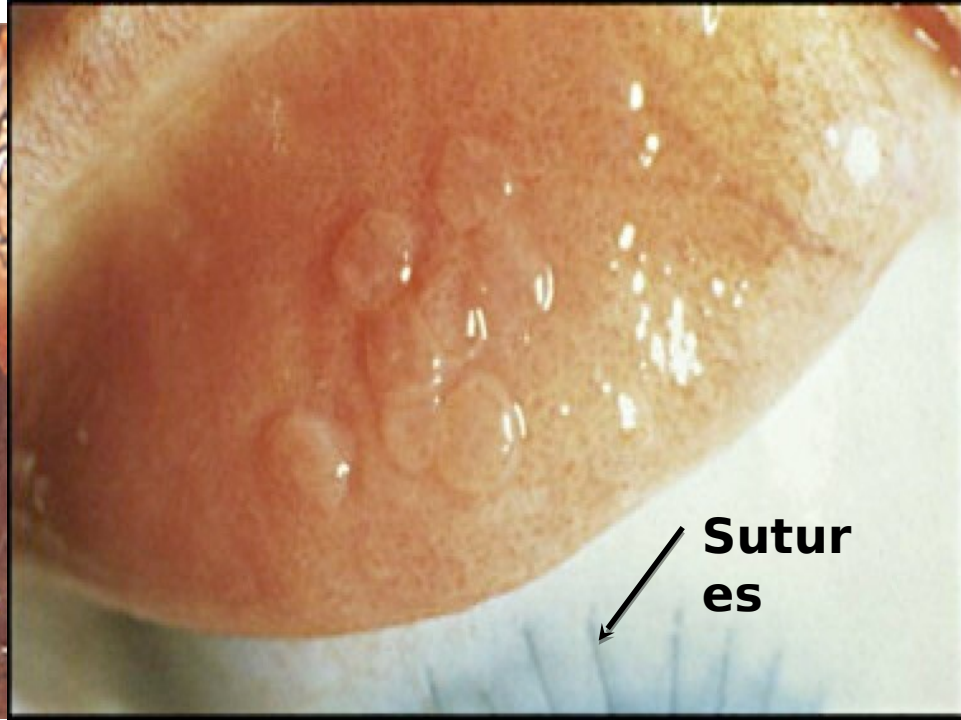
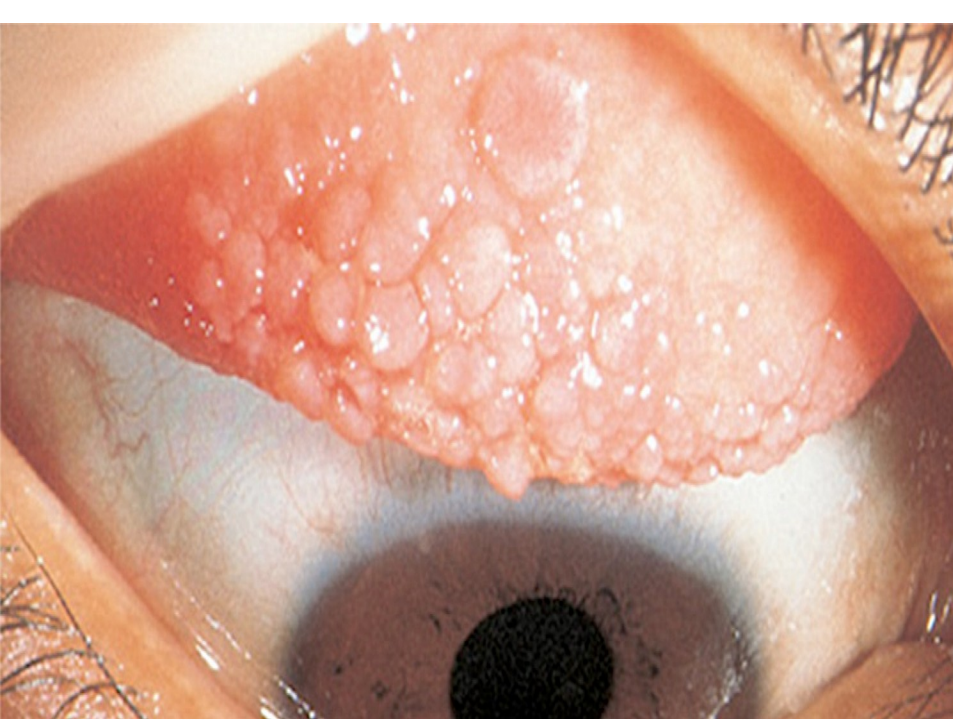
**Pann
us**

**Infiltrat
ion**

**Ede
ma**

Giant papillary conjunctivitis (GPK)

- A condition similar to VKC but with much larger papillae
acanthameba
- Occurs with **chronic** use of contact lenses esp. **SOFT**
- Mixed physical and allergic factors
- One type can occur with postoperative sutures
- Treatment is by **elimination of cause**



Conjunctivitis medicamentosa

- A very common cause of chronic conjunctivitis
- Occurs with chronic use of many types of topical medications due to allergy to **preservatives** in drops
- Common are topical antibiotics, **glaucoma** medications and **artificial** tears
- A clue to the diagnosis is presence of skin **eczema** from spilling of drops
- Treatment is by **stopping** ALL topical medications
- Prescribing topical **anesthetics** for HOME use is **MALPRACTICE** and can lead to **neurotropic corneal ulcer_and_eye PERFORATION**

Pingueculum



Left Eye

- Harmless triangular swelling of conjunctiva frequently nasal
- Repeated inflammation may predispose to pterygium
- Can be removed if causing cosmetic disfigurement.

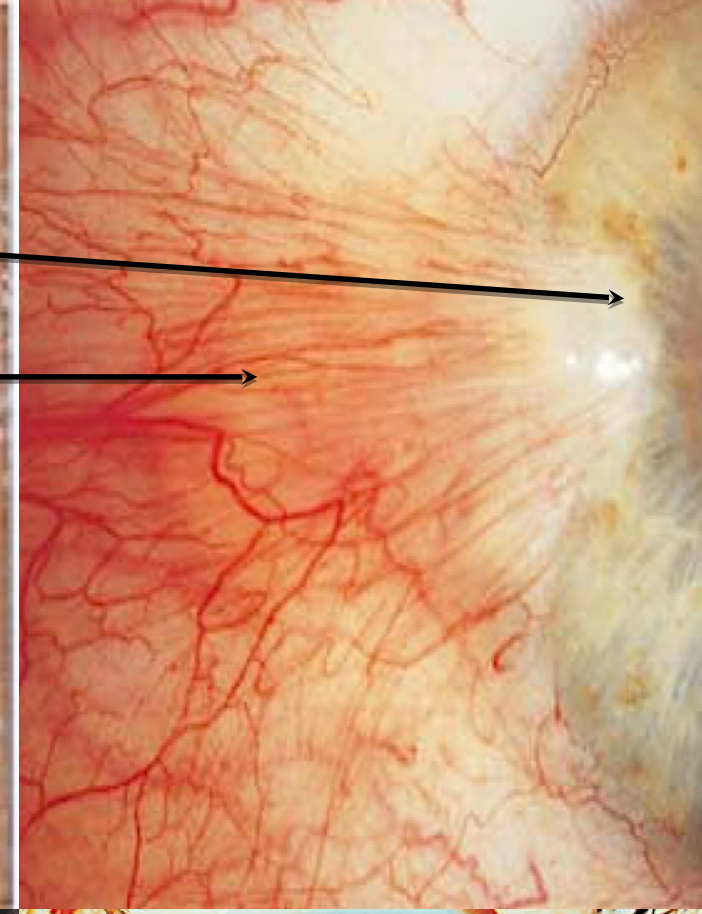
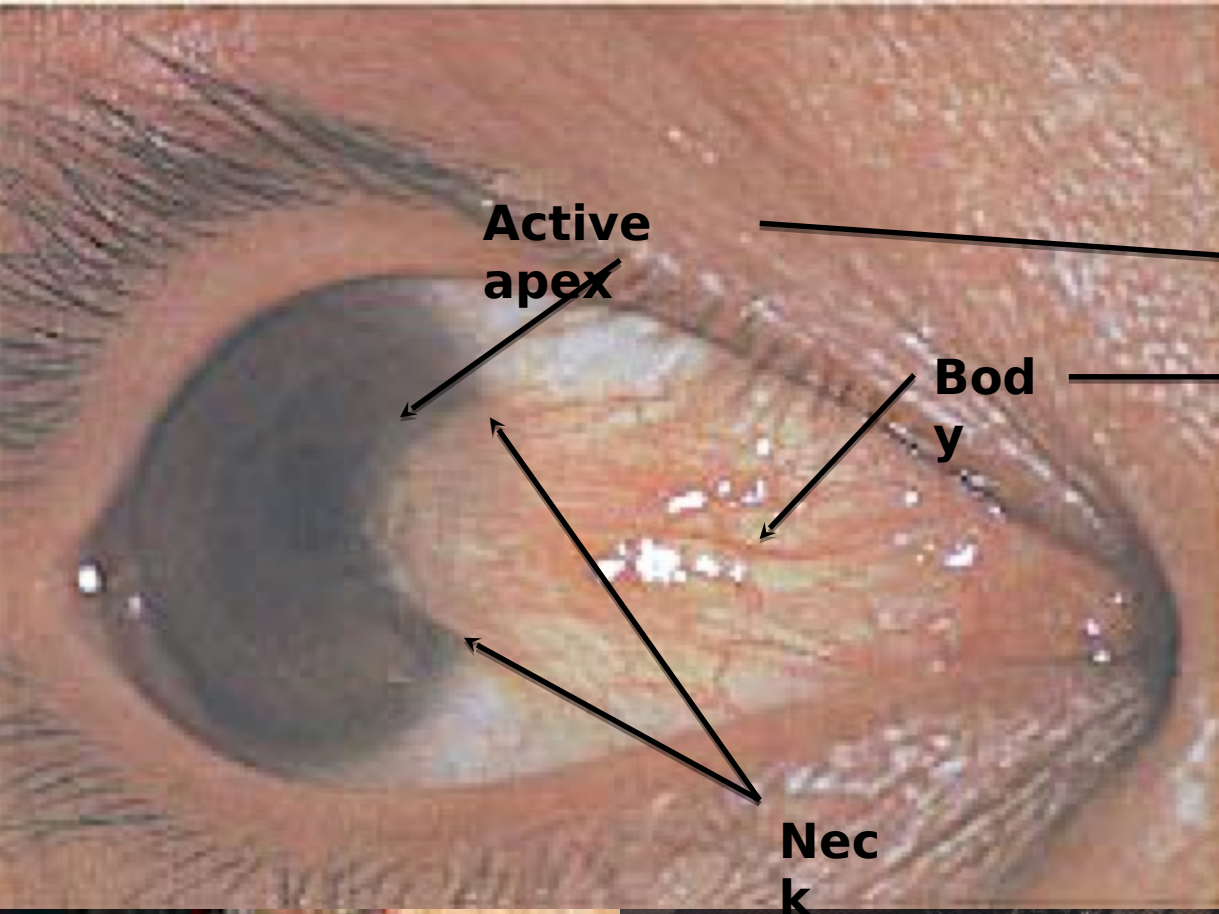
PINGUECULA

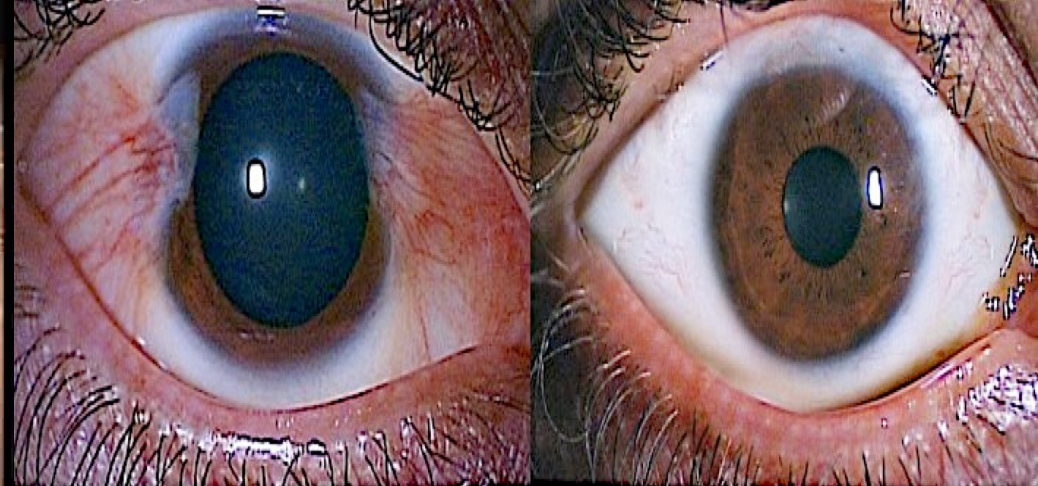
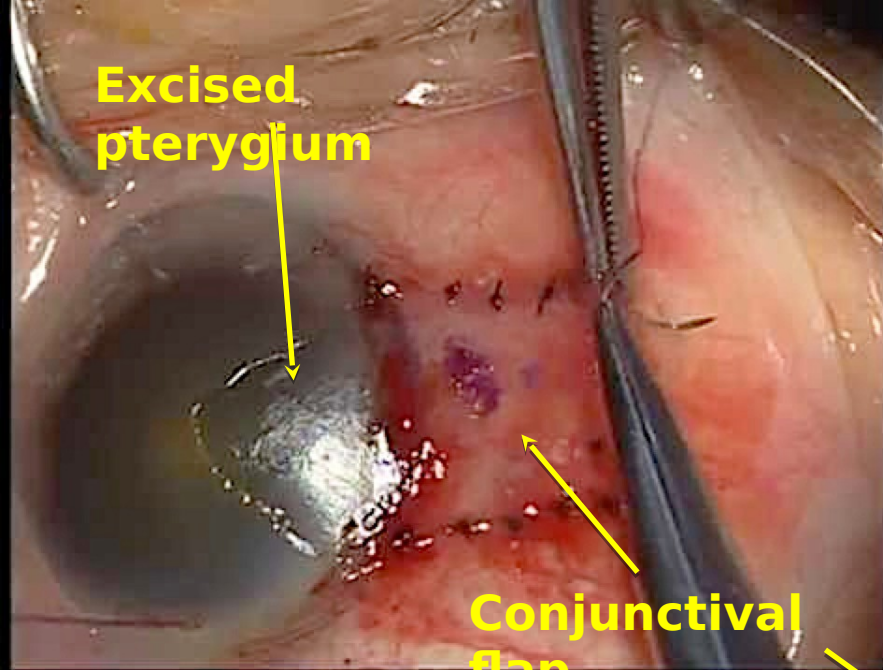


Pterygium



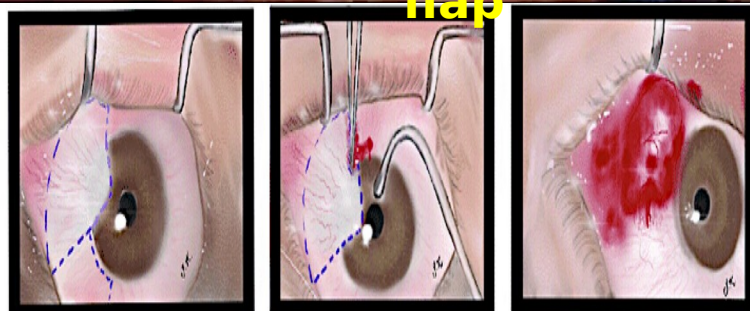
- It is a degenerative and hyperplastic process in which a triangular fold of bulbar conjunctiva actively invades the cornea in the interpalpebral area
- Primary pterygium is that pterygium first time to appear in the patient eye.
- Pterygium activity depends upon the state of the advancing head
 - Active, Progressive = Head **Serrated**
 - Mild progressive = Head **Rounded**
 - Atrophic, inactive = Head is **scared**.



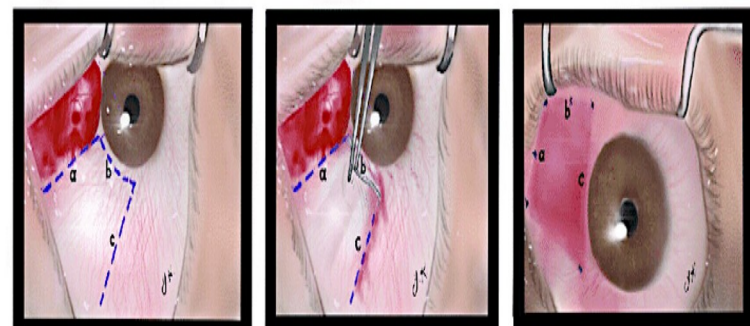


↑ Before

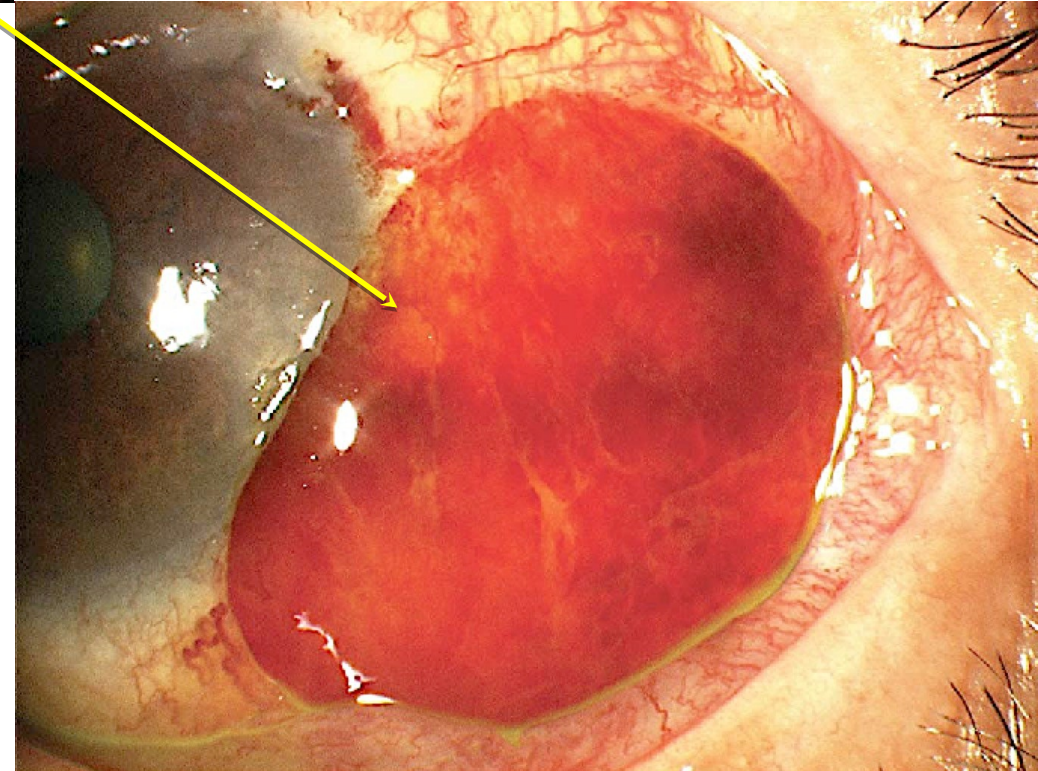
↑ After



(a) (b) (c)



(d) (e) (f)



Ocular cicatricial pemphigoid

- Autoimmune diseases to epithelial basement membrane components resulting in
 - Severe conjunctival fibrosis with loss of goblet cells and accessory lacrimal glands
 - Symblepharon and shallowing of fornices
 - Corneal epithelial ulceration
 - Loss of limbal stem cells
 - Corneal vascularization
 - Severe dry eye
- Treatment by corticosteroids and immunosuppressors

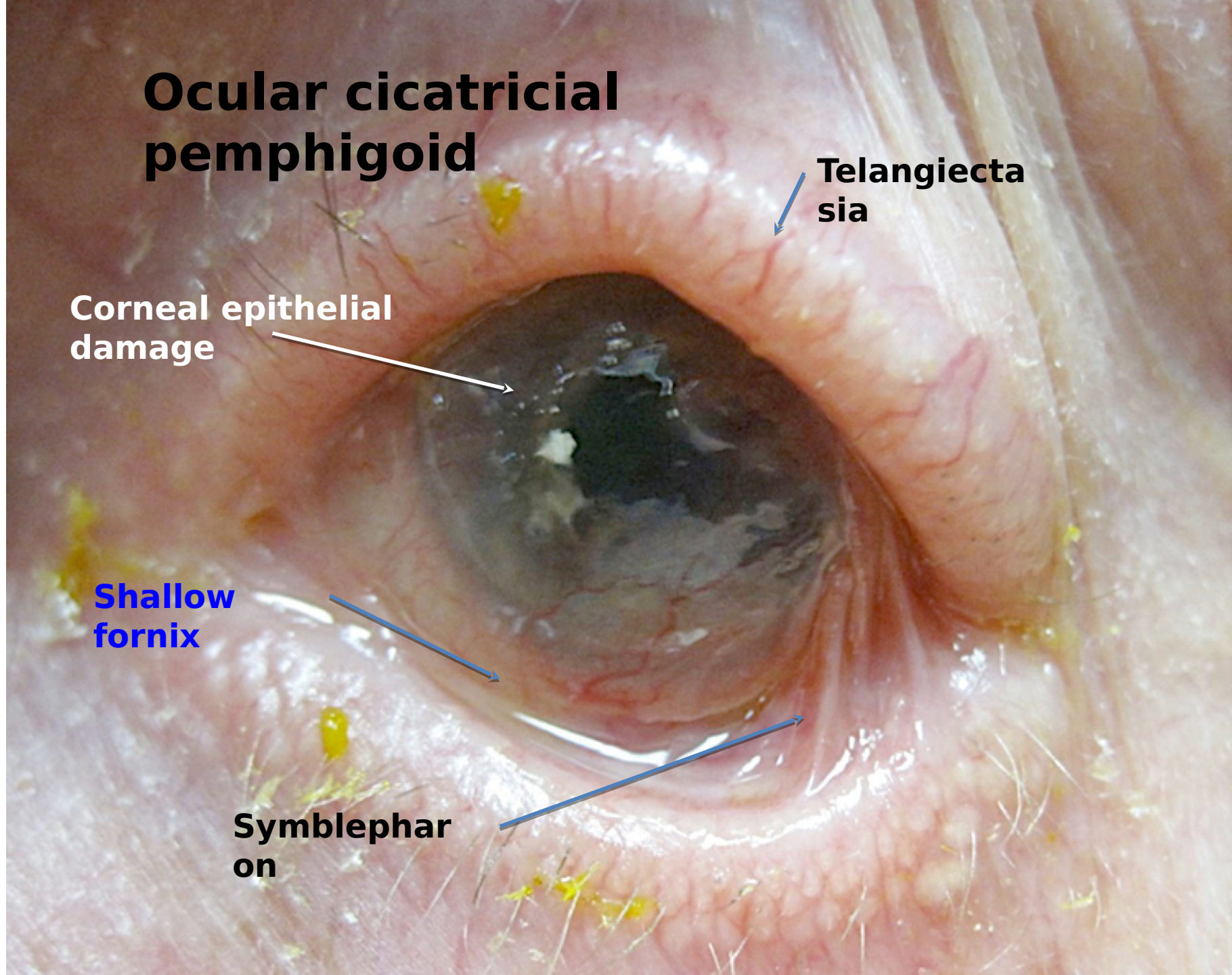
Ocular cicatricial pemphigoid

Telangiectasia

Corneal epithelial damage

Shallow fornix

Symblepharion



Dry Eye

- Decreased **water** component of tears resulting in tear **hyperosmolarity**
- **Causes** symptoms of irritation; dryness, FB sensation, redness, roughness etc.
- **Many cases** are idiopathic in **perimenopausal** females
- Cornea and conjunctiva are dry, **lustless**
 - decreased tear meniscus height
 - increased tear film debris
 - **Positive** interpalpebral staining with rose Bengal and Lissamine green

- **Schirmer's** test **positive**
- Tear film **osmometry**
- **Other causes**
 - **Chronic trachoma**
 - **Sjogren's syndrome**
 - OCP
 - Post Lasik
 - Multiple ocular surgeries
- **Treatment:** **tear replacement** and in severe cases **punctal occlusion**

DRY EYE COMMON SYMPTOMS



Stinging
or burning



Excessive
tearing



Sandy or gritty
sensation



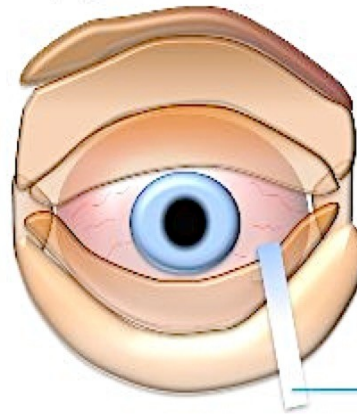
Episodes of
blurred vision



Redness

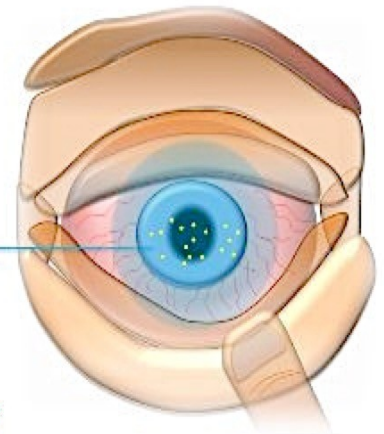
LIFETIME EYECARE
597 Baldwin St, Jenison MI
616-457-0760

Dry eyes



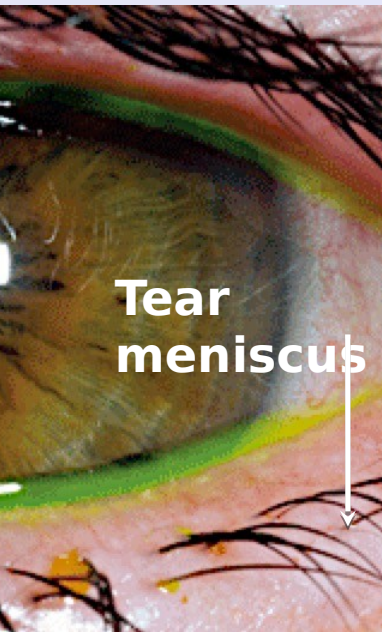
Schirmer
test

Dry eyes are sometimes red, sensitive and painful. Dry eyes may be related to a shortage of tears or poor tear quality. A Schirmer test using filter measures the quantity of tears produced. This is an easy test that can be performed in the clinic.



PEEs

In severe cases the cornea may be damaged (Punctate Epithelial Erosions – PEEs) so the pain and discomfort will be more severe. Dry eye should be treated with lubricant drops and gels and/ or punctal plugs



Tear
meniscus



LIPID (OIL)

Prevents tears film
evaporation

AQUEOUS (WATER)

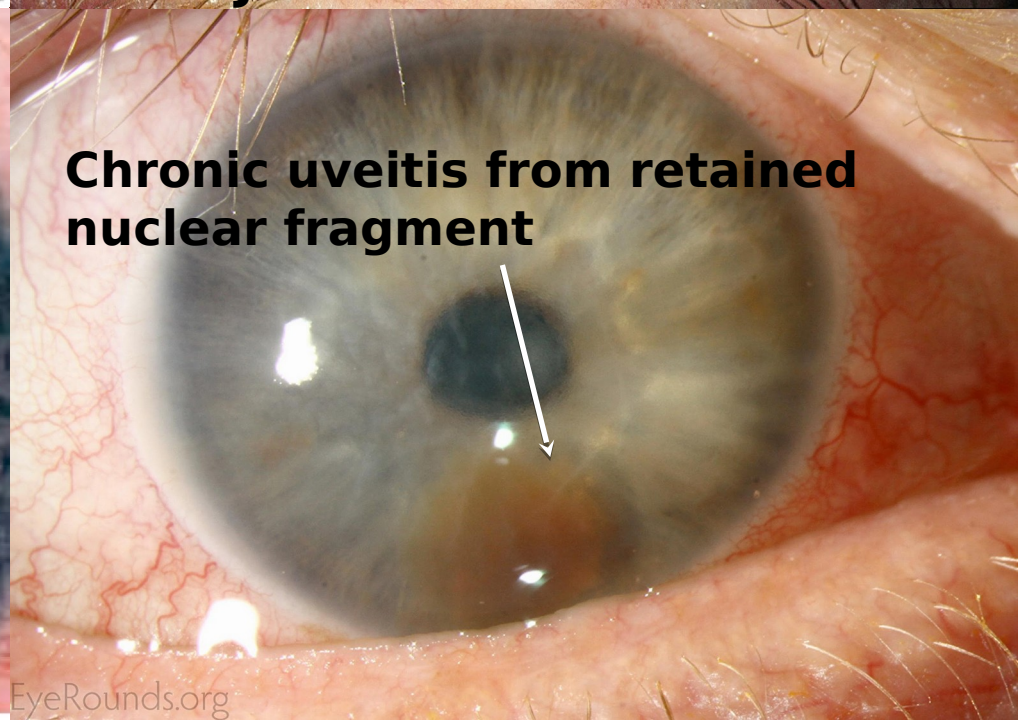
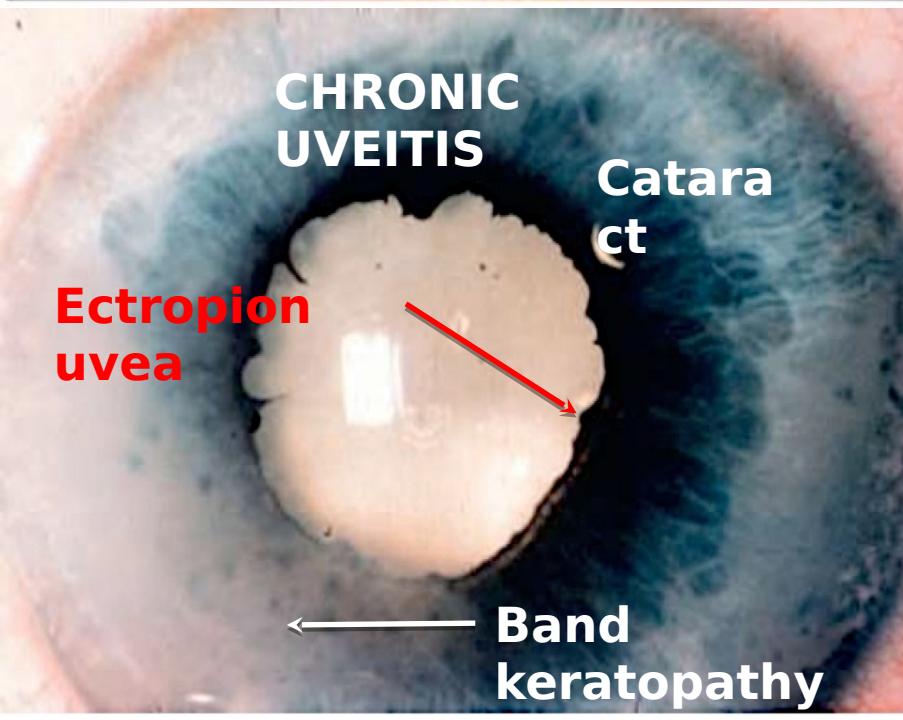
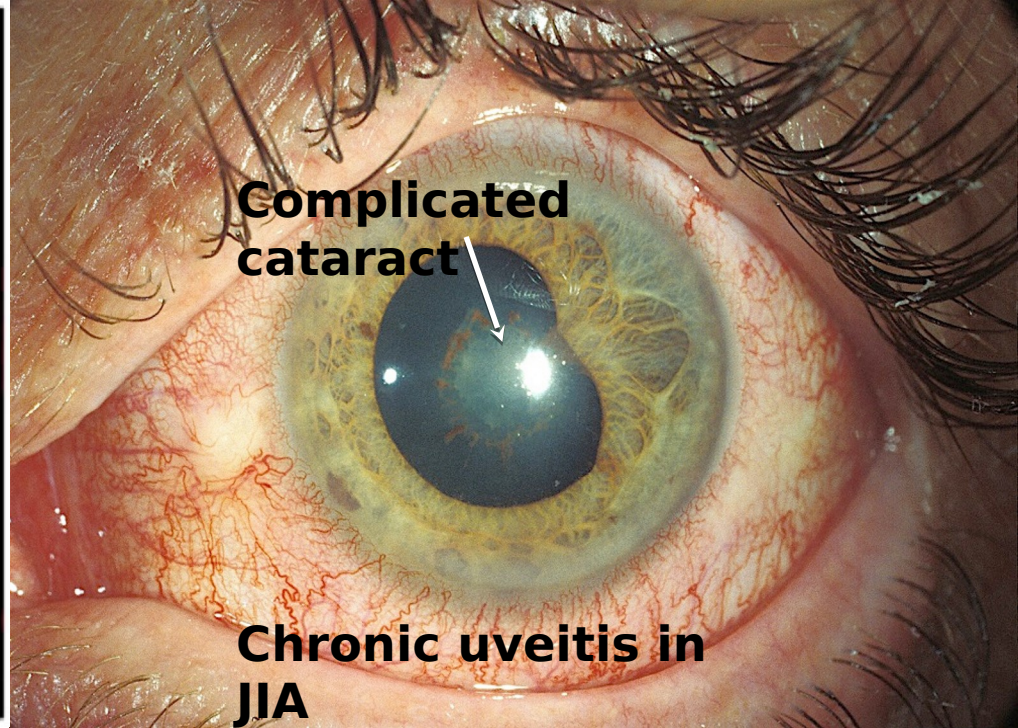
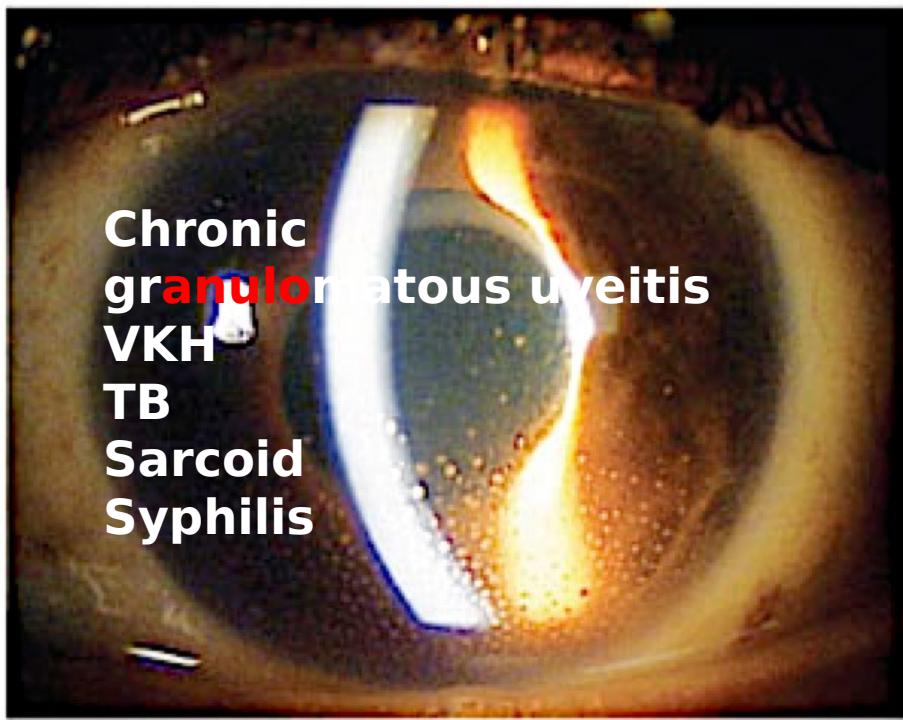
Contains water
and nutrients

MUCIN (MUCOUS)

Spreads tear film
evenly over eye

Chronic uveitis

- Most chronic uveitis are **granulomatous**
- Subacute symptoms of **pain, photophobia**, red eye and drop of vision
- Secondary glaucoma common
- Common causes are
 - Postoperative
 - Chronic endophthalmitis
 - Retained lens material
 - Vitreous loss
 - JIA
 - VKH
 - Sarcoidosis
 - Tuberculosis
 - **Syphilis**



Chronic glaucoma

- Chronic angle closure and inflammatory glaucoma may present as chronic red eye with pain, headache and progressive loss of vision
- Common causes
 - Maltreated acute angle closure glaucoma
 - Herpetic secondary glaucoma
 - **Neovascular** glaucoma
 - Increased episcleral venous pressure
 - Uveitic glaucoma
 - Essential iris atrophy

